

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims:

Claims 1-4 (Cancelled).

5. (Previously Presented) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier;

wherein the control circuit receives an input control voltage and makes the idling current behave so as to exponentially change, relative to the input control voltage,

wherein the amplifier is fabricated with GaAsHBTs packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with Si transistors or GaAsHBTs packaged on a semiconductor integrated circuit.

6. (Previously Presented) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier,

wherein the control circuit receives an input control voltage and makes the idling current behave so as to exponentially change, relative to the input control voltage,

wherein the amplifier is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor, and

wherein the control circuit is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit.

Claims 7-14 (Cancelled).

15. (Previously Presented) The power amplifier module according to claim 5,

wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into the idling current that changes exponentially.

16. (Previously Presented) The power amplifier module according to claim 6,

wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into the idling current that changes exponentially.

17. (New) A power amplifier module comprising:

an amplifier; and

a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier;

wherein the control circuit receives an input control voltage and makes the idling current behave so as to follow an exponential function of the input control voltage;

wherein the control circuit includes:

a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into current that changes exponentially relative to the input control voltage;

wherein the amplifier is fabricated with GaAsHBTs packaged on a semiconductor integrated circuit including a

pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor; and

wherein the control circuit is fabricated with Si transistors or GaAsHBTs packaged on a semiconductor integrated circuit.

18. (New) A power amplifier module comprising:
an amplifier; and
a control circuit that supplies the amplifier with an idling current that controls the output power of the amplifier;

wherein the control circuit receives an input control voltage and makes the idling current behave so as to follow an exponential function of the input control voltage;

wherein the control circuit includes:
a circuit that converts the input control voltage into current;

a circuit that generates a reference voltage from the current into which the input control voltage has been converted and sets a gradient of voltage that changes in proportion to the input control voltage; and

a circuit that converts the voltage into current that changes exponentially relative to the input control voltage;

wherein the amplifier is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit including a pair of an input transistor and an output transistor, the input transistor carrying the idling current and forming a current mirror circuit in conjunction with the output transistor; and

wherein the control circuit is fabricated with SiGeHBTs or Si bipolar transistors packaged on a semiconductor integrated circuit.